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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/528,397	03/17/2005	Paul Royston Harvey	PHNL020845US	5014

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Philips Intellectual Property & Standards
595 Miner Road
Cleveland, OH 44143

EXAMINER

LARYEA, LAWRENCE N

ART UNIT	PAPER NUMBER
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3768

MAIL DATE	DELIVERY MODE
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07/26/2007

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.		Applicant(s)	
	10/528,397		HARVEY, PAUL ROYSTON	
	Examiner		Art Unit	
	Lawrence N. Laryea		3768	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 17 April 2007.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-20 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-20 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 17 March 2005 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>01/17/2007 03/17/2005</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

1. This Office Action is responsive to the Amendment filed 17 April 2007. Claims 1-20 are now pending. The Examiner acknowledges the amendments to claims 5,12-17 and 18, as and the addition of claims 19 and 20.
2. Applicant's arguments with respect to claims 1-20 have been considered but are moot in view of the new ground(s) of rejection.

Drawings

3. The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore, the "the predetermined path being a straight line and the magnet system comprising a cylindrical magnet" in claim17, and "the predetermined path being curved and the magnet system comprising an open magnetic resonance system" in claim 18 must be shown or the feature(s) canceled from the claim(s). No new matter should be entered. Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency.

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Additional replacement sheets may be necessary to show the renumbering of the remaining figures: Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Claim Rejections - 35 USC § 102

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

5. Claims 1-3,6,8,11,12,14,16-19 and 20 are rejected under 35 U.S.C. 102(e) as being anticipated by **Brittain et al (Patent 6897655)**.

6. Re Claims 1, 10 and 12: **Brittain et al** teach a system of magnetic resonance imaging comprising providing a magnetic field within an imaging volume, moving a subject continuously along a predetermined path, defining a sub-volume of the imaging volume, together with the subject, the sub-volume being selected such that the time of movement of the sub-volume within the imaging volume is sufficient for magnetic resonance image data acquisition with a predefined

resolution, performing a step of magnetic resonance image data acquisition for the sub-volume, defining a subsequent sub-volume which neighbours the sub-volume on the predetermined path to perform a subsequent step of magnetic resonance image data acquisition for the subsequent sub-volume (**See Col. 1, lines 14-20, Col. 2, lines 23-55, Col. 17, lines 10-67 and Col. 18, lines 1-4 and Figures 3 and 8**).

7. Re Claims 2 and 3: **Brittain et al** teach a system of magnetic resonance imaging wherein a multislice imaging method is used for the step of magnetic resonance image data acquisition for the sub-volume, the sub-volume containing a stack of two dimensional slices along the predetermined path and a three-dimensional imaging method is used for the step of magnetic resonance image data acquisition for the sub-volume (**See Col. 8, lines 10-11 and Col. 16, lines 49-53**).

8. Re Claims 6, 11 and 14: **Brittain et al** teach a system of magnetic resonance imaging wherein the magnetic resonance image data acquisition is performed by means of a parallel imaging technique (**See Col. 8, lines 10-11**).

9. Re Claims 8 and 15: **Brittain et al** teach a system of magnetic resonance imaging wherein the magnetic resonance image data acquisition being cyclically repeated, whereby one repetition is performed for each one of the sub-volumes (**See Col. 2, lines 56-67, Col. 8, lines 16-19, Col. 12, lines 40-50, Col. 13, lines 12-17, Col. 15, lines 15-21, Col. 1, lines 34-41, and Claim 29**).

10. Re Claims 9 and 16: **Brittain et al** teach a system of magnetic resonance imaging wherein the sub-volumes having a first extension along the predetermined path, the imaging volume having a second extension along the predetermined path, the

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second extension being at least twice the first extension (**See Figures 2,3 and 8 Col. 8, line 10-11**).

11. Re Claim 19: **Brittain et al** teach a system of magnetic resonance imaging wherein correcting the acquired magnetic resonance image data for zero order phase error accumulated due to the continuous moving (**See Col. 10, lines 55-67; Col. 11, lines 1-49 and Col. 14, lines 7-43**).

12. Re Claim 20: **Brittain et al** teach a system of magnetic resonance imaging wherein processing the acquired magnetic resonance image data to form an image of a subject section to be imaged; and visualizing the image of the subject section (**See Col. 10, lines 34-55, and Col. 5, lines 35-53**).

13. Re Claims 17 and 18: **Brittain et al** teach a system of magnetic resonance imaging wherein the predetermined path being a straight line and the magnet system comprising a cylindrical magnet and the predetermined path being curved and the magnet system comprising an open magnetic resonance system (**See Fig. 1 for magnet system**).

Claim Rejections - 35 USC § 103

14. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

15. Claims 4,5 and 13 are rejected under 35 U.S.C. **102(e)** as anticipated by or, in the alternative, under 35 U.S.C. **103(a)** as obvious over **Brittain et al (Patent 6897655)**.

16. **Brittain et al** does not disclose the sub-volume having an extension along the predetermined path between 3 and 7 cm and the speed of movement being between 0.5 and 5 mm per second.

17. **Brittain et al** teach a sub-volume having an extension along the predetermined path and speed of movement in seconds (**See Col. 7, lines 57-61, Col. 9, lines 50-67; Col. 10, lines 1-8, Figures 2,3,6,7 and 11**).

At the time the invention was made, it would have been an obvious matter of design choice to a person of ordinary skill in the art to modify **Brittain et al** because Applicant has not disclosed that the sub-volume having an extension along the predetermined path between 3 and 7 cm and a speed of 0.5 to 5 mm per second provides an advantage, is used for a particular purpose, or solves a stated problem. One of ordinary skill in the art, furthermore, would have expected the length, the speed and applicant's invention to perform equally well with any required length and speed during MRI wherein a subject is continuously moved through the magnetic field.

Therefore, it would have been prima facie obvious to modify **Brittain et al** to obtain the same method as specified in claims 4,5 and 13 because such a modification would have been considered a mere design consideration which fails to patentably distinguish over the prior art of **Brittain et al**.

18. Claim 7 is rejected under 35 U.S.C. 103(a) as being unpatentable over **Brittain et al** in view of **Madore (6714010)**.

Brittain et al teach the claimed invention, see rejection supra; however **Brittain et al** does not teach that MRI system includes a SENSE-type parallel imaging technique.

19. **Madore** teach MRI system wherein a SENSE-type parallel imaging technique is used (**See Abstract**).

It would have been obvious to one having ordinary skill in the art at the time invention was made to modify the MRI system of **Brittain et al** to have incorporated the teachings of **Madore** to further to reduce aliasing in a reconstructed image and acquisition times.

Conclusion

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.


Ma et al (Patent 7054675), Mueller (6879852), Brittain et al (6801034), Yui (Patent 6556011), Xu et al (Patent 6064290), Kruger et al (Patent 6912415), Kruip (Patent 7167004), Creighton et al (Patent 6529761) and Machida (Patent 7110805) teach MRI system for acquiring FOV images.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Lawrence N. Laryea whose telephone number is 571-272-9060. The examiner can normally be reached on 9:30 a.m.-5:30 p.m. EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Eleni Mantis-Mercader can be reached on 571-272-4740. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

LNL


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Supervisory Patent Examiner
Art Unit 3768